EFFICIENCY IN EXCHANGE

AE 503

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CONSUMER A’s INDIFFERENCE MAP
CONSUMER B’s INDIFFERENCE MAP
Take consumer B’s indifference map and place it over consumer A’s to form the Edgeworth Box:

- A’s origin will be in the bottom left corner
- B’s origin will be in the top right corner
EDGECORTH BOX OF EXCHANGE
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- OA
- OB
- x1
- x2
- x1_B
- x2_B
- O^B
- O^A
- M
- W

- A1, A2, A3, A4
- B1, B2, B3, B4

- x^1_A
- x^1_B
- x^2_A
- x^2_B
- x^2

- ω^1_A
- ω^1_B
- ω^2_A
- ω^2_B
PARETO EFFICIENT ALLOCATIONS

Contract Curve

O^A  x^1  O^B

x^2

A_1, A_2, A_3, A_4, A_5

B_1, B_2, B_3, B_4, B_5

Point M

Points a, b, c, d, W
**PARETO IMPROVEMENTS**

Movements from the endowment point $W$ to any point in the shaded area are *Pareto improvements*

Either both consumers are made better off, or one is made better off, the other being no worse off.

**PARETO EFFICIENCY**

Points a, b, and M are all *Pareto efficient*

At these points, there is no way of making one consumer better off, without making the other consumer worse off.
The relevant condition for Pareto efficiency is that consumer A’s indifference curve is \emph{tangent} to consumer B’s indifference curve:

$$\text{MRS}^A_{1,2} = \text{MRS}^B_{1,2}$$

This condition is met at points a, b, and M, and all other points on the \emph{contract curve}.

The contract curve joins up all Pareto efficient points in the Edgeworth Box, however, relative to the endowment point, W, the relevant portion lies between points a and b.